

**ROBERT SMITHSON:
THE COLLECTED WRITINGS**

EDITED BY JACK FLAM

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RONALD BLADEN, *Untitled*, 1965. Aluminum and painted wood, each element, 108 x 48 x 120 x 21".

ENTROPY AND THE NEW MONUMENTS (1966)

On rising to my feet, and peering across the green glow of the Desert, I perceived that the monument against which I had slept was but one of thousands. Before me stretched long parallel avenues, clear to the far horizon of similar broad, low pillars.

John Taine (Eric Temple Bell) "THE TIME STREAM"

Many architectural concepts found in science-fiction have nothing to do with science or fiction, instead they suggest a new kind of monumentality which has much in common with the aims of some of today's artists. I am thinking in particular of Donald Judd, Robert Morris, Sol LeWitt, Dan Flavin, and of certain artists in the "Park Place Group." The artists who build structured canvases and "wall-size" paintings, such as Will Insley, Peter Hutchinson and Frank Stella are more indirectly related. The chrome and plastic fabricators such as Paul Thek, Craig Kauffman, and Larry Bell are also relevant. The works of many of these artists celebrate what Flavin calls "inactive history" or what the

Artforum, June 1966

physicist calls "entropy" or "energy-drain." They bring to mind the Ice Age rather than the Golden Age, and would most likely confirm Vladimir Nabokov's observation that, "The future is but the obsolete in reverse." In a rather round-about way, many of the artists have provided a visible analog for the Second Law of Thermodynamics, which extrapolates the range of entropy by telling us energy is more easily lost than obtained, and that in the ultimate future the whole universe will burn out and be transformed into an all-encompassing sameness. The "blackout" that covered the Northeastern states recently, may be seen as a preview of such a future. Far from creating a mood of dread, the power failure created a mood of euphoria. An almost cosmic joy swept over all the darkened cities. Why people felt that way may never be answered.

Instead of causing us to remember the past like the old monuments, the new monuments seem to cause us to forget the future. Instead of being made of natural materials, such as marble, granite, or other kinds of rock, the new monuments are made of artificial materials, plastic, chrome, and electric light. They are not built for the ages, but rather against the ages. They are involved in a systematic reduction of time down to fractions of seconds, rather than in representing the long spaces of centuries. Both past and future are placed into an objective present. This kind of time has little or no space; it is stationary and without movement, it is going nowhere, it is anti-Newtonian, as well as being instant, and is against the wheels of the time-clock. Flavin makes "instant-monuments"; parts for "Monument 7 for V. Tatlin" were purchased at the Radar Fluorescent Company. The "instant" makes Flavin's work a part of time rather than space. Time becomes a place minus motion. If time is a place, then innumerable places are possible. Flavin turns gallery-space into gallery time. Time breaks down into many times. Rather than saying, "What time is it?" we should say, "Where is the time?" "Where is Flavin's Monument?" The objective present at times seems missing. A million years is contained in a second, yet we tend to forget the second as soon as it happens. Flavin's destruction of classical time and space is based on an entirely new notion of the structure of matter.

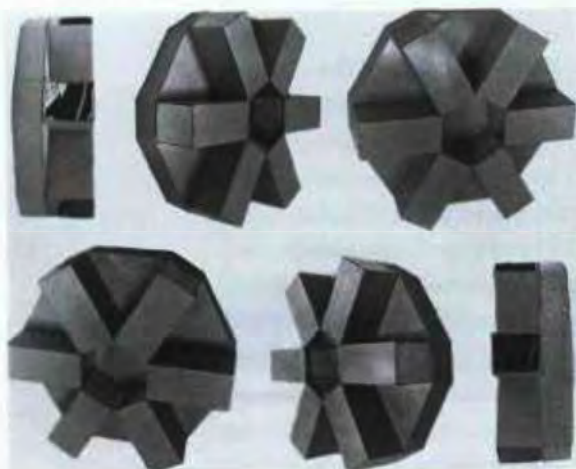
Time as decay or biological evolution is eliminated by many of these artists; this displacement allows the eye to see time as an infinity of surfaces or structures, or both combined, without the burden of what Roland Barthes calls the "undifferentiated mass of organic sensation." The concealed surfaces in some of Judd's works are hideouts for time. His art vanishes into a series of motionless intervals based on an order of solids. Robert Grosvenor's suspended structural surfaces cancel out the notion of weight, and reverse the orientation of matter within the solid-state of inorganic time. This reduction of time all but annihilates the value of the notion of "action" in art.

Mistakes and dead-ends often mean more to these artists than any proven problem. Questions about form seem as hopelessly inadequate as questions about content. Problems are unnecessary because problems represent values

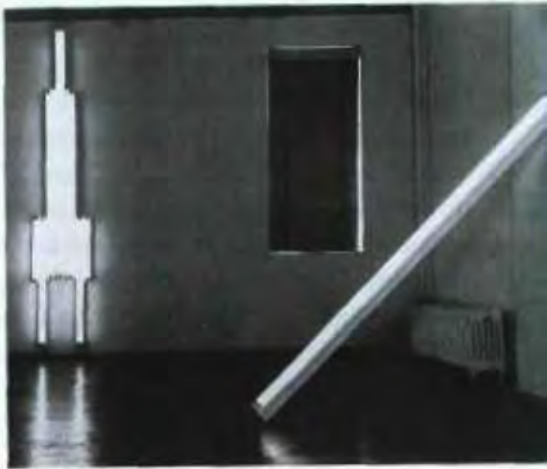
that create the illusion of purpose. The problem of "form vs. content," for example, leads to illusionistic dialectics that become, at best, formalist reactions against content. Reaction follows action, till finally the artist gets "tired" and settles for a monumental inaction. The action-reaction syndrome is merely the leftovers of what Marshall McLuhan calls the hypnotic state of mechanism. According to him, an electrical numbing or torpor has replaced the mechanical breakdown. The awareness of the ultimate collapse of both mechanical and electrical technology has motivated these artists to build their monuments to or against entropy. As LeWitt points out, "I am not interested in idealizing technology." LeWitt might prefer the word "sub-monumental," especially if we consider his proposal to put a piece of Cellini's jewelry into a block of cement. An almost alchemic fascination with inert properties is his concern here, but LeWitt prefers to turn gold into cement.

The much denigrated architecture of Park Avenue known as "cold glass boxes," along with the Manneristic modernity of Philip Johnson, have helped to foster the entropic mood. The Union Carbide building best typifies such architectural entropy. In its vast lobby one may see an exhibition called "The Future." It offers the purposeless "educational" displays of Will Burtin, "internationally acclaimed for his three-dimensional designs," which portray "Atomic Energy in Action." If ever there was an example of action in entropy, this is it. The action is frozen into an array of plastic and neon, and enhanced by the sound of Muzak faintly playing in the background. At a certain time of day, you may also see a movie called "The Petrified River." A nine-foot vacuum-formed blue plexiglass globe is a model of a uranium atom—"ten million trillion trillion times the size of the actual atom." Lights on the ends of flexible steel rods are whipped about in the globe. Parts of the "underground"

ROBERT SMITHSON, *Cryosphere*, 1966. Painted steel w/chrome inserts, six modules, 17 x 17 x 6".



DAN FLAVIN, installation view, November 1964.



movie, "The Queen of Sheba Meets the Atom Man," were filmed in this exhibition hall. Taylor Mead creeps around in the film like a loony sleepwalker, and licks the plastic models depicting "chain-reaction." The sleek walls and high ceilings give the place an uncanny tomb-like atmosphere. There is something irresistible about such a place, something grand and empty.

This kind of architecture without "value of qualities," is, if anything, a fact. From this "undistinguished" run of architecture, as Flavin calls it, we gain a clear perception of physical reality free from the general claims of "purity and idealism." Only commodities can afford such illusionistic values; for instance, soap is 99 $\frac{1}{100}$ % pure, beer has more spirit in it, and dog food is ideal; all and all this means such values are worthless. As the cloying effect of such "values" wears off, one perceives the "facts" of the outer edge, the flat surface, the banal, the empty, the cool, blank after blank; in other words, that infinitesimal condition known as entropy.

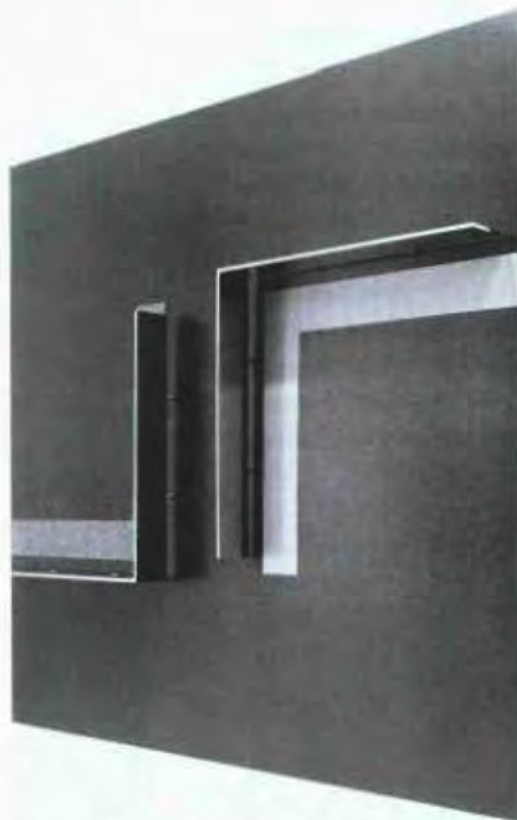
The slurbs, urban sprawl, and the infinite number of housing developments of the postwar boom have contributed to the architecture of entropy. Judd, in a review of a show by Roy Lichtenstein, speaks of "a lot of visible things" that are "bland and empty," such as "most modern commercial buildings, new Colonial stores, lobbies, most houses, most clothing, sheet aluminum, and plastic with leather texture, the formica like wood, the cute and modern patterns inside jets and drugstores." Near the super highways surrounding the city, we find the discount centers and cut-rate stores with their sterile facades. On the inside of such places are maze-like counters with piles of neatly stacked merchandise; rank on rank it goes into a consumer oblivion. The lugubrious complexity of these interiors has brought to art a new consciousness of the vapid and the dull. But this very vapidity and dullness is what inspires many of the

ROBERT GROSVENOR, *Trattoria*, 1965. Painted wood, polyester and steel. 126 x 372 x 36".





FORREST MYERS, *E13*, 1965. Aluminum and lacquer paint, 16 x 16 x 16".



JOHN CHAMBERLAIN, *Conrad*, 1964. Auto lacquer, metal flake on formica with chrome, 48 x 48".

more gifted artists. Morris has distilled many such dull facts and made them into monumental artifices of "idea." In such a way, Morris has restored the idea of immortality by accepting it as a fact of emptiness. His work conveys a mood of vast immobility; he has even gone so far as to fashion a bra out of lead. (Thus he has made for his dance partner, Yvonne Rainer, to help stop the motion in her dances.)

This kind of nullification has re-created Kasimir Malevich's "non-objective world," where there are no more "likenesses of reality, no idealistic images, nothing but a desert!" But for many of today's artists this "desert" is a "City of the Future" made of null structures and surfaces. This "City" performs no natural function, it simply exists between mind and matter, detached from both, representing neither. It is, in fact, devoid of all classical ideals of space and process. It is brought into focus by a strict condition of perception, rather than by any expressive or emotive means. Perception as a deprivation of action and reaction brings to the mind the desolate, but exquisite, surface-structures of the empty "box" or "lattice." As action decreases, the clarity of such surface-structures increases. This is evident in art when all representations of action pass into oblivion. At this stage, lethargy is elevated to the most glorious magnitude. In Damon Knight's Sci-fic novel, "Beyond the Barrier," he describes in a phenomenological manner just such surface-structures: "Part of the scene before them seemed to expand. Where one of the flotation machines had been, there was a dim lattice of crystals, growing more shadowy and insubstantial as it swelled; then darkness; then a dazzle of faint prismatic light—tiny complexes in a vast three-dimensional array, growing steadily bigger." This description has none of the "values" of the naturalistic "literary" novel, it is crystalline, and of the mind by virtue of

being outside of unconscious action. This very well could be an inchoate concept for a work by Judd, LeWitt, Flavin, or Insley.

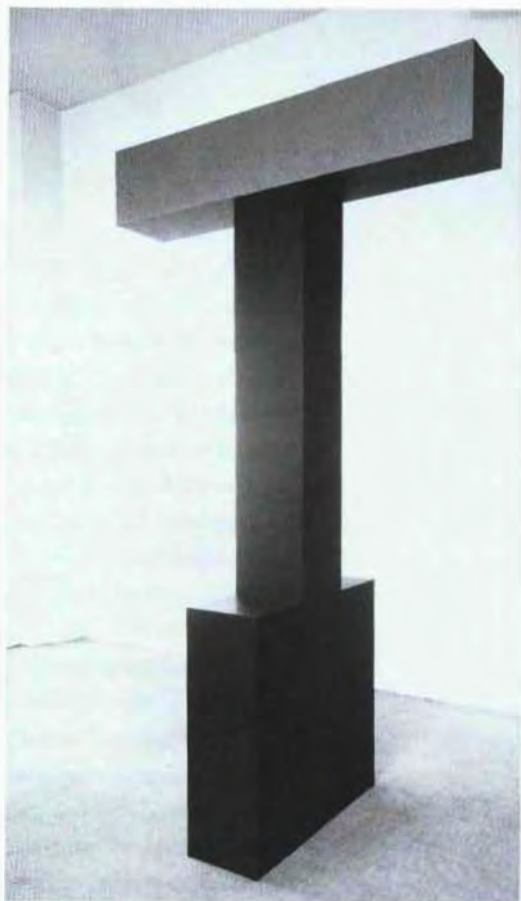
It seems that beyond the barrier, there are only more barriers. Insley's "Night Wall" is both a grid and a blockade; it offers no escape. Flavin's fluorescent lights all but prevent prolonged viewing; ultimately, there is nothing to see. Judd turns the logic of set theory into block-like facades. These facades hide nothing but the wall they hang on.

LeWitt's first one-man show at the now defunct Daniel's Gallery presented a rather uncompromising group of monumental "obstructions." Many people were "left cold" by them, or found their finish "too dreary." These obstructions stood as visible clues of the future. A future of humdrum practicality in the shape of standardized office buildings modeled after Emery Roth; in other words, a jerry-built future, a feigned future, an ersatz future very much like the one depicted in the movie "The Tenth Victim." LeWitt's show has helped to neutralize the myth of progress. It has also corroborated Wylie Sypher's insight that "Entropy is evolution in reverse." LeWitt's work carries with it the brainwashed mood of Jasper Johns' "Tennyson," Flavin's "Coran's Broadway Flesh," and Stella's "The Marriage of Reason and Squalor."

Morris also discloses this backward looking future with "erections" and "vaginas" embedded in lead. They tend to illustrate fossilized sexuality by mixing the time states or ideas of "1984" with "One Million B.C." Claes Oldenburg achieves a similar conjunction of time with his prehistoric "ray-guns." This sense of extreme past and future has its partial origin with the Museum of Natural History; there the "cave-man" and the "space-man" may be seen under one roof. In this museum all "nature" is stuffed and interchangeable.



PAUL THEK, *Hippopotamus*, 1965. 19³/₄ x 11 x 11¹/₄".



LYMAN KIPP, *Andy's Carte Blanche*, 1965.
Painted plywood, 96 x 36 x 60".

This City (I thought) is so horrible that its mere existence and perdurance, though in the midst of a secret desert, contaminates the past and future and in some way even jeopardizes the stars.

Jorge Luis Borges, *The Immortal*

Tromaderians consider anything blue extremely pornographic.

Peter Hutchinson, *Extraterrestrial Art*

"Lust for Life" is the story of the great sensualist painter Vincent Van Gogh, who bounds through the pages and passions of Irving Stone's perennial bestseller. And this is the Van Gogh overwhelmingly brought before us by Kirk Douglas in M-G-M's film version, shot in Cinemascope and a sun-burst of color on the actual sites of Van Gogh's struggles to feel feelings never felt before.

Promotion Copy, quoted in

Vincent Van Gogh—The Big Picture, John Mulligan

Unlike the hyper-prosaism of Morris, Flavin, LeWitt, and Judd, the works of Thek, Kauffman, and Bell convey a hyper-opulence. Thek's sadistic geometry is made out of simulated hunks of torn flesh. Bloody meat in the shape of a birthday cake is contained under a pyramidal chrome framework—it has stainless steel candies in it. Tubes for drinking "blood cocktails" are inserted into some of his painful objects. Thek achieves a putrid finesse, not unlike that disclosed in William S. Burroughs' *Nova Express*;—"Flesh juice in festering spines of terminal sewage—Run down of Spain and 42nd St. to the fish city of marble flesh grafts—." The vacuum-formed plastic reliefs by Kauffman have a pale lustrous surface presence. A lumpy sexuality is implicit in the transparent forms he employs. Something of the primal nightmare exists in both Thek and Kauffman. The slippery bubbling ooze from the movie "The Blob" creeps into one's mind. Both Thek and Kauffman have arrested the movement of blob-type matter. The mirrored reflections in Bell's work are contaminations of a more elusive order. His chrome-plated lattices contain a Pythagorean chaos. Reflections reflect reflections in an excessive but pristine manner.

Some artists see an infinite number of movies. Hutchinson, for instance, instead of going to the country to study nature, will go to see a movie on 42nd Street, like "Horror at Party Beach" two or three times and contemplate it for weeks on end. The movies give a ritual pattern to the lives of many artists, and this induces a kind of "low-budget" mysticism, which keeps them in a perpetual trance. The "blood and guts" of horror movies provides for their "organic needs," while the "cold steel" of Sci-fic movies provides for their "inorganic needs." Serious movies are too heavy on "values," and so are dismissed by the more perceptive artists. Such artists have X-ray eyes, and can see through all of that cloddish substance that passes for "the deep and profound" these days.

Some landmarks of Sci-fic are: *Creation of the Humanoids* (Andy Warhol's fa-



ROBERT MORRIS, *Untitled*, 1963. Lead, 10 x 8".



PETER HUTCHINSON, *Silver Highlight*, 1966. Liquitex on canvas, 72 x 7".

vorite movie), *The Planet of the Vampires* (movie about entropy), *The Thing*, *The Day the Earth Stood Still*, *The Time Machine*, *Village of the Giants* (first teen-science film), *War of the Worlds* (interesting metallic machines). Some landmarks of Horror are: *Creature from the Black Lagoon*, *I Was a Teenage Werewolf*, *Horror Chamber of Dr. Faustus* (very sickening), *Abbott and Costello Meet Frankenstein*. Artists that like Horror tend toward the emotive, while artists who like Sci-fic tend toward the perceptive.

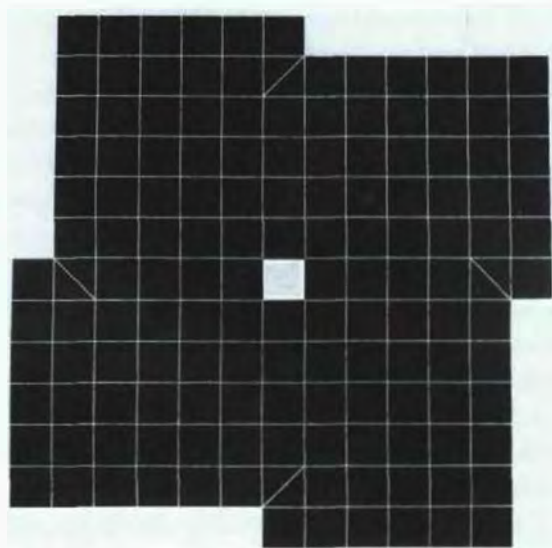
Even more of a mental conditioner than the movies, is the actual movie house. Especially the "moderne" interior architecture of the new "art-houses" like Cinema I and II, 57th St. Lincoln Art Theatre, the Coronet, Cinema Rendezvous, the Cinema Village, the Baronet, the Festival, and the Murray Hill. Instead of the crummy baroque and rococo of the 42nd Street theaters, we get the "padded cell" look, the "stripped down" look, or the "good-taste" look. The physical confinement of the dark box-like room indirectly conditions the mind. Even the place where you buy your ticket is called a "box-office." The lobbies are usually full of box-type fixtures like the soda-machine, the candy counter, and telephone booths. Time is compressed or stopped inside the movie house, and this in turn provides the viewer with an entropic condition. To spend time in a movie house is to make a "hole" in one's life.

Recently, there has been an attempt to formulate an analog between "communication theory" and the ideas of physics in terms of entropy. As A. J. Ayer has pointed out, not only do we communicate what is true, but also what is false. Often the false has a greater "reality" than the true. Therefore, it seems

that all information, and that includes anything that is visible, has its entropic side. Falseness, as an ultimate, is inextricably a part of entropy, and this falseness is devoid of moral implications.

Like the movies and the movie houses, "printed-matter" plays an entropic role. Maps, charts, advertisements, art books, science books, money, architectural plans, math books, graphs, diagrams, newspapers, comics, booklets and pamphlets from industrial companies are all treated the same. Judd has a labyrinthine collection of "printed-matter," some of which he "looks" at rather than reads. By this means he might take a math equation, and by sight, translate it into a metal progression of structured intervals. In this context, it is best to think of "printed-matter" the way Borges thinks of it, as "The universe (which others call the library)," or like McLuhan's "Gutenberg Galaxy," in other words as an unending "library of Babel." This condition is reflected in Henry Geldzahler's remark, "I'm doing a book on European painting since 1900—a drugstore book. Dell is printing 100,000 copies." Too bad Dell isn't printing 100,000,000,000.

Judd's sensibility encompasses geology, and mineralogy. He has an excellent collection of geologic maps, which he scans from time to time, not for their intended content, but for their exquisite structural precision. His own writing style has much in common with the terse, factual descriptions one finds in his collection of geology books. Compare this passage from one of his books, "The Geology of Jackson County, Missouri" to his own criticism: "The interval between the Cement City and the Raytown limestones varies from 10 to 23 feet. The lower three-quarters is an irregularly colored green, blue, red, and yellow



WILL INSLEY, *Night Wall*, 1964. Lead, oil on masonite, 8' 8" high.

shale which at some places contains calcareous concretions." And now an excerpt from Judd's review of Dan Flavin's first one-man show: "The light is bluntly and awkwardly stuck on the square block; it protrudes awkwardly. The red in the green attached to a lighter green is odd as color, and as a sequence."

I like particularly the way in which he (Robert Morris) subverts the "purist" reading one would normally give to such geometric arrangements.

Barbara Rose, "Looking at American Sculpture,"
Artforum, February 1965

"Point Triangle Gray" Faith sang, waving at an intersection ahead. "That's the medical section. Tests and diseases, injuries and—" she giggled naughtily—"Supply depot for the Body Bank."

J. Williamson & F. Pohl, *The Reefs of Space*

Make a
sick
picture
or a sick
Readymade

Marcel Duchamp, from the *Green Box*

Many of Morris's wall structures are direct homages to Duchamp; they deploy facsimiles of ready-mades within high Manneristic frames of reference. Extensions of the Cartesian mind are carried to the most attenuated points of no return by a systematic annulment of movement. Descartes' cosmology is brought to a standstill. Movement in Morris's work is engulfed by many types of stillness: delayed action, inadequate energy, general slowness, an all over sluggishness. The ready-mades are, in fact, puns on the Bergsonian concept of "creative evolution" with its idea of "ready made categories." Says Bergson, "The history of philosophy is there, however, and shows us the eternal conflict of systems, the impossibility of satisfactorily getting the real into the ready-made garments of our ready-made concepts, the necessity of making to measure." But it is just such an "impossibility" that appeals to Duchamp and Morris. With this in mind, Morris's monstrous "ideal" structures are inconsequential or uncertain ready-mades, which are definitely outside of Bergson's concept of creative evolution. If anything, they are uncreative in the manner of the 16th-century alchemist-philosopher-artist. C. G. Jung's writing on "The Materia Prima" offers many clues in this direction. Alchemy, it seems, is a concrete way of dealing with sameness. In this context, Duchamp and Morris may be seen as artificers of the uncreative or decreators of the Real. They are like the 16th-century artist Parmigianino, who "gave up painting to become an alchemist." This might help us to understand both Judd's and Morris's interest in geology. It is also well to remember that Parmigianino and Duchamp both painted "Vir-

gins," when they did paint. Sydney Freedberg observed in the work of Parmigianino "an assembly of surfaces, nothing is contained within these surfaces." Such an observation might also be applied to Duchamp's hollow "Virgins," with their insidious almost lewd associations. The "purist" surfaces of certain artists have a "contamination" in them that relates to Duchamp and Parmigianino, if not in fact, at least in idea.

The impure-purist surface is very much in evidence in the new abstract art, but I think Stella was the first to employ it. The iridescent purple, green, and silver surfaces that followed Stella's all-black works, conveyed a rather lurid presence through their symmetries. An exacerbated, gorgeous color gives a chilling bite to the purist context. Immaculate beginnings are subsumed by glittering ends. Like Mallarmé's "Herodiade," these surfaces disclose a "cold scintillation"; they seem to "love the horror of being virgin." These inaccessible surfaces deny any definite meaning in the most definite way. Here beauty is allied with the repulsive in accordance with highly rigid rules. One's sight is mentally abolished by Stella's hermetic kingdom of surfaces.

Stella's immaculate but sparkling symmetries are reflected in John Chamberlain's "Kandy-Kolored" reliefs. "They are extreme, snazzy, elegant in the wrong way, immoderate," says Judd. "It is also interesting that the surfaces of the reliefs are definitely surfaces." Chamberlain's use of chrome and metalflake brings to mind the surfaces in *Scorpio Rising*, Kenneth Anger's many-faceted horoscopic film about constellated motorcyclists. Both Chamberlain and Anger have developed what could be called California surfaces. In a review of the film, Ken Kelman speaks of "the ultimate reduction of ultimate experience to brilliant chromatic surface; Thanatos in Chrome—artificial death" in a way that evokes Chamberlain's giddy reliefs.

Judd bought a purple Florite crystal at the World's Fair. He likes the "uncreated" look of it and its impenetrable color. John Chamberlain, upon learning of Judd's interest in such a color, suggested he go to the Harley Davidson Motorcycle Company and get some "Hi-Fi" lacquer. Judd did this and "self" sprayed some of his works with it. This transparent lacquer allows the "star-spangled" marking on the iron sheet to come through, making the surfaces look mineral hard. His standard crystallographic boxes come in a variety of surfaces from Saturnian orchid-plus to wrinkle-textured blues and greens—alchemy from the year 2000.

But I think nevertheless, we do not feel altogether comfortable at being forced to say that the crystal is the seat of greater disorder than the parent liquid.

P. W. Bridgman, *The Nature Of Thermodynamics*

The formal logic of crystallography, apart from any preconceived scientific content, relates to Judd's art in an abstract way. If we define an abstract crystal as a solid bounded by symmetrically grouped surfaces, which have definite re-

relationships to a set of imaginary lines called axes, then we have a clue to the structure of Judd's "pink plexiglas box." Inside the box five wires are strung in a way that resembles very strongly the crystallographic idea of axes. Yet, Judd's axes don't correspond with any natural crystal. The entire box would collapse without the tension of the axes. The five axes polarize between two stainless steel sides. The inside surfaces of the steel sides are visible through the transparent plexiglas. Every surface is within full view, which makes the inside and outside equally important. Like many of Judd's works, the separate parts of the box are held together by tension and balance, both of which add to its static existence. -

Like energy, entropy is in the first instance a measure of something that happens when one state is transformed into another.

P. W. Bridgman, *The Nature of Thermodynamics*

The Park Place Group (Mark di Suvero, Dean Fleming, Peter Forakis, Robert Grosvenor, Anthony Magar, Tamara Melcher, Forrest Myers, Ed Ruda, and Leo Valledor) exists in a space-time monastic order, where they research a cosmos modeled after Einstein. They have also permuted the "models" of R. Buckminster Fuller's "vectoral" geometry in the most astounding manner.

Fuller was told by certain scientists that the fourth dimension was "ha-ha," in other words, that it is laughter. Perhaps it is. It is well to remember that the seemingly topsy-turvy world revealed by Lewis Carroll did spring from a well ordered mathematical mind. Martin Gardner in his "The Annotated Alice," notes that in a science-fiction story "Mimsy Were the Borogroves" the author Lewis Padgett presents the Jabberwocky as a secret language from the future, and that if rightly understood, it would explain a way of entering the fourth dimension. The highly ordered non-sense of Carroll, suggests that there might be a similar way to treat laughter. Laughter is in a sense a kind of entropic "verbalization." How could artists translate this verbal entropy, that is "ha-ha," into "solid-models"? Some of the Park Place artists seem to be researching this "curious" condition. The order and disorder of the fourth dimension could be set between laughter and crystal-structure, as a device for unlimited speculation.

Let us now define the different types of Generalized Laughter, according to the six main crystal systems: the ordinary laugh is cubic or square (Isometric), the chuckle is a triangle or pyramid (Tetragonal), the giggle is a hexagon or rhomboid (Hexagonal), the titter is prismatic (Orthorhombic), the snicker is oblique (Monoclinic), the guffaw is asymmetric (Triclinic). To be sure this definition only scratches the surface, but I think it will do for the present. If we apply this "ha-ha-crystal" concept to the monumental models being produced by some of the artists in the Park Place group, we might begin to understand the fourth-dimensional nature of their work. From here on in, we must not think of Laughter as a laughing matter, but rather as the "matter-of-laughs."

Solid-state hilarity, as manifest through the "ha-ha-crystal" concept, appears



SOL LEWITT, 1965. Installation view.

in a patently anthropomorphic way in *Alice in Wonderland*, as the Cheshire Cat. Says Alice to the Cat, "you make one quite giddy!" This anthropomorphic element has much in common with impure-purist art. The "grin without a cat" indicates "laugh-matter and/or anti-matter," not to mention something approaching a solid giddiness. Giddiness of this sort is reflected in Myers' plastic contraptions. Myers sets hard titter against soft snickers, and puts hard guffaws onto soft giggles. A fit of silliness becomes a rhomboid, a high-pitched discharge of mirth becomes prismatic, a happy outburst becomes a cube, and so forth.

You observed them at work in null time. From your description of what they were about, it seems apparent that they were erecting a transfer portal linking the null level with its corresponding aspect of normal entropy—in other words, with the normal continuum.

Keith Laumer, *The Other Side of Time*

Through direct observation, rather than explanation, many of these artists have developed ways to treat the theory of sets, vectoral geometry, topology, and crystal structure. The diagrammatic methods of the "new math" have led to a curious phenomenon. Namely, a more visible math that is unconcerned with size or shape in any metrical sense. The "paper and pencil operations" that deal with the invisible structure of nature have found new models, and have been combined with some of the more fragile states of mind. Math is dislocated by the artists in a personal way, so that it becomes "Manneristic" or

separated from its original meaning. This dislocation of meaning provides the artist with what could be called "synthetic math." Charles Peirce (1839-1914), the American philosopher, speaks of "graphs" that would "put before us moving pictures of thought." (See Martin Gardner's *Logic Machines and Diagrams*.) This synthetic math is reflected in Duchamp's "measured" pieces of fallen threads, "Three Standard Stoppages," Judd's sequential structured surfaces, Valledor's "fourth dimensional" color vectors, Grosvenor's hypervolumes in hyperspace, and di Suvero's demolitions of space-time. These artists face the possibility of other dimensions, with a new kind of sight.